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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/829,358	04/22/2004	Hamilton Wong	70602-021	6062

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EXAMINER

DINH, TIEN QUANG

ART UNIT PAPER NUMBER

3644

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/829,358

Applicant(s)

WONG ET AL.

Examiner

Tien Dinh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 21-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 21-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-15 and 21-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The examiner does not understand what “without substantially transferring vibrations to the at least one instrument” mean. Are there no vibrations being felt? What does substantially mean?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Claims 1, 12, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Fischell.

Fischell discloses a spacecraft having a bus that carries instruments 16 that generate heat. Fischell also discloses an active cooler and thermal panels mounted to the spacecraft at a location spatially separated from the instrument.

Please note that the active cooler that includes elements 26, pipes 20, and panel 21 do not substantially transfer mechanical vibration to the instrument. See figure2. Plus figures 3 and 6 show that the active coolers do not substantially transfer mechanical vibration to the instruments

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42, 67. Please note that the active coolers are at a location that is spatially separated and mechanically isolated from the instrument.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 9, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischell in view of the admitted prior art on page 8 (paragraph 26).

Fischell discloses all claimed parts except for the active cooler being a cryocooler. However, the admitted prior art teaches cryocoolers having compressors and cold head assembly that includes cold finger are well known.

It would have been obvious to one skilled in the art at the time the invention was made to have used cryocoolers having compressors and cold head assembly that includes cold finger in Fischell's system as taught by the admitted prior art for a more efficiently temperature control system. Please note that mounting the cryocooler to the north thermal radiator panel is a step that one skilled in the art would have taken to accommodate the spacecraft for certain missions.

Re claims 9, 10, and 13, please note that the use of multiple active coolers for thermal capability, redundancy, and reliability are steps that one skilled in the art would have taken to improve the safe operation of the spacecraft.

Claims 4-8, 14, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischell as modified by the admitted prior art as applied to claims 1-3 above, and further in view of Feger.

Fischell as modified by the admitted prior art discloses all claimed parts except for the thermal link having braided copper. However, Feger discloses that thermal links made up of braided copper are well known in the art.

It would have been obvious to one skilled in the art at the time the invention was made to have used thermal links made out of braided copper in Fischell's system as modified by the admitted prior art and as taught by Feger to have a more efficiently temperature control system.

Re claim 8, please note that it is an obvious option for one skilled in the art to have a working fluid tube passing through an opening in an earth platform of the spacecraft for access to the instrument portion to be cooled so that the spacecraft can efficiently control the internal temperature.

Please note that the use of a bank of multiple stage active coolers is obvious to one skilled in the art so that the spacecraft can be efficiently controlled.

Please note that the admitted prior art teaches that cryocoolers are well known. One skilled in the art would have used multiple stage cryocoolers and multiple links from the cryocoolers to efficiently control the temperature of the spacecraft.

Please note that the use of multiple coolers involved only routine steps that one skilled in the art would have taken to provide further cooling or for redundancy.

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Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fischell in view of Gelon et al.

Fischell discloses all claimed parts except for the closed loop control system. However, Gelon et al teaches that a closed loop control system is well known.

It would have been obvious to one skilled in the art at the time the invention was made to have used a closed loop control system in Fischell's system as taught by Gelon et al to efficiently control the temperature of the spacecraft.

Claims 15 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischell in view of Caplin.

Fischell discloses all claimed parts except for the solar array. However, Caplin teaches that solar panels are well known.

It would have been obvious to one skilled in the art at the time the invention was made to have used solar panels in Fischell's system as taught by Caplin for generating power.

Please note that the active coolers would inherently eliminate a need to perform a yaw flip of the spacecraft required to prevent radiator sun exposure since the coolers reduced the heat generated in/on the spacecraft.

Please also note that the solar array wings is capable of minimizing the solar pressure torque, the frequent momentum-adjust maneuvers, and a need to carry a large amount of moment-adjust propellant.

Allowable Subject Matter

Claim 21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

The Examiner has analyzed the response by the applicant but still maintains that the prior arts still read upon what is claimed. Fischell discloses what has been claimed. Please see the rejection above.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the prior arts as combined with the Fischell reference clearly would lead one of ordinary skill in the art to have used the claimed parts to make the spacecraft thermal control system better and more efficient.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

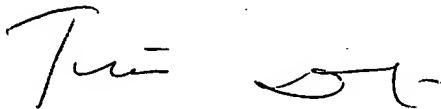
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tien Dinh whose telephone number is 571-272-6899. The examiner can normally be reached on 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teri Luu can be reached on 571-272-7045. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TD

A handwritten signature in black ink, appearing to read "T. J. Smith" or similar, written in a cursive style.